

Amendments

In the Claims:

Please cancel claims ~~6~~, ~~7~~, and ~~8~~, without prejudice or disclaimer.

Please substitute the following claims 1-5 and 9-31 for the pending claims 1-5 and 9-31:

1.(Amended) A cable modem for down-converting an electromagnetic signal having complex modulations, comprising:

an oscillator to generate an in-phase oscillating signal;

a phase shifter to receive said in-phase oscillating signal and to create a quadrature-phase oscillating signal;

a first universal frequency down-conversion module to receive the electromagnetic signal and said in-phase oscillating signal;

a second universal frequency down-conversion module to receive the electromagnetic signal and said quadrature-phase oscillating signal; wherein

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said first universal frequency down-conversion module further comprising a first universal frequency translation module and a first storage module, wherein said first universal frequency translation module samples the electromagnetic signal at a rate that is a function of said in-phase oscillating signal, thereby creating a first sampled signal; and

said second universal frequency down-conversion module further comprising a second universal frequency translation module and a second storage module, wherein said first universal frequency translation module samples the electromagnetic signal at a rate that is a function of said quadrature-phase oscillating signal, thereby creating a second sampled signal.

2.(Amended) The cable modem of claim 1, wherein said quadrature-phase oscillating signal is out of phase with said in-phase oscillating signal by substantially 90°.

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3.(Amended) The cable modem of claim 1, wherein said first storage device has a first storage first port and a first storage second port, said first storage first port being connected to said first sampled signal, and said first storage second port is connected to a first reference potential, and said second storage device has a second storage first port and a second storage second port, said second storage first port being connected to said second sampled signal, and said second storage second port is connected to a second reference potential.

4.(Amended) The cable modem of claim 3, wherein said first storage device is a first capacitor, and said second storage device is a second capacitor.

5.(Amended) The cable modem of claim 3, wherein said first reference potential is substantially equal to ground, and said second reference potential is substantially equal to ground.

9.(Amended) The cable modem of claim 1, wherein said first sampled signal is comprised of two or more voltage levels.

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10.(Amended) The cable modem of claim 9, wherein said first sampled signal is comprised of eight voltage levels.

11.(Amended) The cable modem of claim 9, wherein said first sampled signal is comprised of sixteen voltage levels.

12.(Amended) The cable modem of claim 1, wherein said second sampled signal is comprised of two or more voltage levels.

13.(Amended) The cable modem of claim 12, wherein said second sampled signal is comprised of eight voltage levels.

14.(Amended) The cable modem of claim 12, wherein said second sampled signal is comprised of sixteen voltage levels.

15.(Amended) The cable modem of claim 1, wherein said first sampled signal is a first information output signal, and said second sampled signal is a second information output signal.

16.(Amended) The cable modem of claim 1, further comprising a first amplifier receiving said first sampled signal and outputting a first amplified signal, and a second amplifier receiving said second sampled signal and outputting a second amplified signal.

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17.(Amended) The cable modem of claim 16, further comprising a first filter receiving said first amplified signal and outputting a first filtered signal, and a second filter receiving said second amplified signal and outputting a second filtered signal.

18.(Amended) The cable modem of claim 1, further comprising a first filter receiving said first sampled signal and outputting a first filtered signal, and a second filter receiving said second sampled signal and outputting a second filtered signal.

19.(Amended) The cable modem of claim 1, wherein the electromagnetic signal has been transmitted over a coaxial cable to the cable modem.

20.(Amended) The cable modem of claim 1, wherein the electromagnetic signal has been transmitted by a wireless method to the cable modem.

21.(Amended) A cable modem, comprising:
an oscillator to generate an in-phase oscillating signal;
a phase shifter to receive said in-phase oscillating signal and to create a quadrature-phase oscillating signal;

a first universal frequency translation module to receive said in-phase oscillating signal and a first information signal, wherein said in-phase oscillating signal causes said first universal frequency translation module to gate said first information signal and thereby generate a first periodic signal having a first plurality of harmonics;

a second universal frequency translation module to receive said quadrature-phase oscillating signal and a second information signal, wherein said quadrature-phase oscillating signal causes said second universal frequency translation module to gate said second information signal and thereby generate a second periodic signal having a second plurality of harmonics;

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a summer coupled to said first universal frequency translation module and to said second universal frequency translation module, said summer to receive and combine said first periodic signal and said second periodic signal, and to output a combined periodic signal having a combined plurality of harmonics; and

a filter coupled to said summer, said filter to isolate at least one of said combined plurality of harmonics.

22.(Amended) The cable modem of claim 21, wherein said in-phase oscillating signal and said quadrature-phase oscillating signal have substantially the same frequency and are out of phase with each other by substantially 90°.

23.(Amended) The cable modem of claim 21, further comprising:

a first pulse shaping module connected to said first universal frequency translation module, said first pulse shaping module accepting said in-phase oscillating signal and outputting a first shaped oscillating signal, wherein said first shaped oscillating signal causes said first universal frequency translation module to gate said first information signal;

a second pulse shaping module connected to said second universal frequency translation module, said second pulse shaping module accepting said quadrature-phase oscillating signal and outputting a second shaped oscillating signal, wherein said second shaped oscillating

signal causes said second universal frequency translation module to gate said second information signal.

24.(Amended) The cable modem of claim 21, wherein said first information signal is comprised of two or more voltage levels.

25.(Amended) The cable modem of claim 24, wherein said first information signal is comprised of eight voltage levels.

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26.(Amended) The cable modem of claim 24, wherein said first information signal is comprised of sixteen voltage levels.

27.(Amended) The cable modem of claim 21, wherein said second information signal is comprised of two or more voltage levels.

28.(Amended) The cable modem of claim 27, wherein said second information signal is comprised of eight voltage levels.

29.(Amended) The cable modem of claim 27, wherein said second information signal is comprised of sixteen voltage levels.

30.(Amended) The cable modem of claim 21, wherein said filter isolates an output signal, said output signal being transmitted from the cable modem over a coaxial cable.

31.(Amended) The cable modem of claim 21, wherein said filter isolates an output signal, said output signal being transmitted from the cable modem via a wireless method.